

## **REMARKS**

Applicants wish to thank the Examiner for the consideration given to this case to date. Applicants have now had an opportunity to consider the Examiner's Action, and respectfully submit that the claims of the subject application, as amended, are in condition for allowance.

## **STATUS OF CLAIMS**

The subject application was originally filed with <sup>24 (?)</sup>~~21~~ claims. In this Amendment, Applicant has cancelled claims 8, 13, and 15 without prejudice or disclaimer and reserves the right to present these claims, or the subject matter recited therein, in this or a later filed case. Applicant has also amended claims 1, 2, 5-7, 9-12, 16, 18, 20 and 23 and introduced new claims 25-28. Upon entry of this Amendment, claims 1-7, 9-12, 14 and 16-28 will be pending in the subject application.

### **A. THE EXAMINER'S ACTION**

The Office Action dated December 14, 2005, the Office rejected claims 1, 2, 7, 8 and 10-14 under 35 U.S.C. § 102(b) as being anticipated by U.S. Patent No. 5,525,008 issued to Wilson (the "Wilson '008 patent").

In addition, the Office rejected claims 3-6 and 15 under 35 U.S.C. § 103(a) as being unpatentable over the Wilson '008 patent.

Finally, the Office rejected claims 9 and 16-24 under 35 U.S.C. § 103(a) as being unpatentable over the Wilson '008 patent in view of U.S. Patent No. 6,352,387 (the "Briggs '387 patent").

## **B. APPLICANTS' RESPONSE TO EXAMINER'S ACTION**

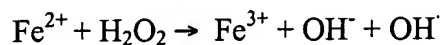
### **1. Remarks Common To All Rejections**

In response to the Examiner's rejection of all of the claims of the subject application, Applicants wish to offer general remarks regarding the embodiments disclosed in the subject application, particularly vis-à-vis the invention disclosed in the Wilson '008 patent.

The invention disclosed in the Wilson '008 patent, when boiled down to its essence, includes the following steps (the "Wilson process"):

First, an oxidant (hydrogen peroxide solution) is pumped into an injector mixing head (col. 9, line 18-22).

Second, a catalyst is simultaneously pumped into the same injector mixing head (col. 9, lines 22-25), wherein the catalyst is a metal salt (e.g., ferrous sulfate, or other solution salts of iron, copper, magnesium, nickel, silver, platinum and gold) (col. 8, line 64 through col. 9, line 1; col. 9, lines 26-29), resulting in a Fenton reaction:



Since the hydrogen peroxide solution and the metal salt solution must co-exist for a period of time prior to treating the re-circulated contaminated groundwater (see below), stabilizers may be added to the mixture to "delay the degradation of the hydrogen peroxide" and otherwise "prevent the exothermic reaction produced through the use of this method from proceeding too rapidly" (col. 9, lines 2-7).

Third, pressurized gas is provided into the same injector mixing head (col. 9, lines 30-35). The Wilson '008 patent discloses that the pressurized gas may include air, ozone or nitrogen (col. 9, line 35). However, ozone reacts instantaneously with hydrogen peroxide solution, forming highly reactive hydroxy radicals with very short life spans. Thus, if the Wilson

process actually utilized ozone as a pressurized gas, the area that could be treated would be severely limited. In fact, the hydroxy radicals would likely be completely consumed before even leaving the injector, making the Wilson process substantially or completely ineffective. As described above, the Wilson '008 patent specifically teaches the prevention of too rapid formation of hydroxy radicals by the addition of stabilizers. Thus, it is highly unlikely that ozone would or could be used in the Wilson process.

Finally, re-circulated groundwater is pumped from an underground aquifer into the contaminated areas along with co-existing hydrogen peroxide solution, catalyst solution and injected gases (col. 8, lines 44-51).

Based on the foregoing, the Wilson '008 patent fails to teach sequential application of the hydrogen peroxide solution, the catalyst solution and the pressurized air. In contrast, the Wilson '008 patent specifically teaches a "one pot" application of a mixture of hydrogen peroxide solution, the catalyst solution and the pressurized air, the stabilization of which is beneficial to its efficacy.

2. Rejections To Claims 8 And 13 Under 35 U.S.C. § 102(b), And To Claim 15 Under 35 U.S.C. § 103(a).

Claims 8, 13 and 15 have been cancelled without prejudice and, thus, the rejection of these claims is moot.

3. Rejections To Amended Claims 1, 2, 7 And 10-12 And Claim 14 Under 35 U.S.C. § 102(b).

Under 35 U.S.C. § 102, a claim is anticipated only if each and every limitation as set forth in the claim is found, either expressly or inherently described, in a single prior art reference. Applicants assert that the Wilson '008 patent fails to expressly or inherently disclose each and every limitation recited in amended claim 1 for at least the following reasons.

First, as set forth above, the Wilson '008 patent fails to expressly or inherently disclose the sequential injection of a first oxidant, compressed air, and a second oxidant. Instead, the Wilson '008 patent specifically teaches the simultaneous injection of an oxidant, compressed air and a metal salt catalyst (col. 9, lines 18-25).

Second, the Wilson '008 patent fails to expressly or inherently disclose a first injection point and a second injection point for injection of the first oxidant and the second oxidant, respectively. Rather, the Wilson '008 patent specifically teaches the collection and injection of the oxidant, compressed air and a metal salt catalyst in and from a single injector (col. 9, lines 18-32).

Amended claims 2, 7, 10-12 and claim 14 directly or indirectly depend from amended claim 1 and, thus, include each and every limitation contained in amended claim 1. As a result, the Wilson '008 patent fails to disclose the features recited in amended claims 2, 7, 10-12 and claim 14.

For the reasons discussed above, the Wilson '008 patent fails to expressly or inherently disclose each and every limitation of amended claims 1, 2, 7, 10-12 and claim 14. Accordingly, Applicant respectfully requests that the rejections to these claims be withdrawn.

4. Rejections To Claims 3 And 4 And Amended Claims 5 And 6 Under 35 U.S.C. § 103(a)

To establish a prima facie case of obviousness under 35 U.S.C. § 103, three basic criteria must be met. First, the prior art reference (or references when combined) must teach or suggest each and every claim limitation. Second, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Finally, there must be a reasonable expectation of success to modify the reference or to combine reference teachings.

Applicants assert that the Wilson '008 patent fails to teach or suggest each and every claim limitation of claims 3 and 4 and amended claims 5 and 6 for the reasons discussed above with respect to amended claim 1, since claims 3 and 4 and amended claims 5 and 6 depend, either directly or indirectly, from amended claim 1. Accordingly, Applicant respectfully submits that a prima facie case of obviousness has not been established.

5. Rejections To Amended Claims 9, 16, 18, 20 And 23 And Claims 17, 19, 21, 22 And 24 Under 35 U.S.C. § 103(a)

a. *Amended Claim 9*

Applicants assert that the combination of the Wilson '008 patent and the Briggs '387 patent fails to teach or suggest each and every claim limitation of amended claim 9 for the reasons discussed above with respect to amended claim 1, since claim 9 depends indirectly from amended claim 1. Accordingly, Applicants respectfully submit that a prima facie case of obviousness has not been established. Therefore, Applicants respectfully request that the Examiner withdraw the rejection to claim 9 under 35 U.S.C. § 103(a).

b. *Amended Claims 16, 18 and 20 and Claims 17, 19, 21 and 22.*

Applicants assert that the combination of the Wilson '008 patent and the Briggs '387 patent fails to teach or suggest each and every claim limitation of amended claim 16. Specifically, neither the Wilson '008 patent nor the Briggs '387 patent, alone or in combination, teach or suggest the sequential injection of a hydrogen peroxide solution, an ozone/oxygen mixture and compressed air. Instead, the Wilson '008 patent specifically teaches the simultaneous injection of an oxidant, compressed air and a metal salt catalyst. Indeed, given the very different chemistry that occurs in the Wilson '008 patent and the subject application, no reasonable expectation of success exists to modify the Wilson '008 patent or to combine Wilson

'008 patent and the Briggs '387 patent to include the sequential injection of a hydrogen peroxide solution, an ozone/oxygen mixture and compressed air.

Moreover, neither the Wilson '008 patent nor the Briggs '387 patent, alone or in combination, teach or suggest a first injection point and a second injection point for injection of the hydrogen peroxide solution and the ozone/oxygen mixture. As described above, the Wilson '008 patent specifically teaches the collection and injection of the oxidant, compressed air and a metal salt catalyst in and from a single injector. Indeed, given the very different chemistry that occurs in the Wilson '008 patent and the subject application, no reasonable expectation of success exists to modify the Wilson '008 patent or to combine Wilson '008 patent and the Briggs '387 patent.

With regard to amended claims 18 and 20 and claims 17, 19, 21 and 22, Applicants assert that the combination of the Wilson '008 patent and the Briggs '387 patent fails to teach or suggest each and every claim limitation thereof for the reasons discussed above with respect to amended claim 16, since amended claims 18 and 20 and claims 17, 19, 21 and 22 depend directly or indirectly from amended claim 16.

Accordingly, Applicants respectfully submit that a prima facie case of obviousness has not been established. Therefore, Applicants respectfully request that the Examiner withdraw the rejection to amended claims 16, 18 and 20 and claims 17, 19, 21 and 22 under 35 U.S.C. § 103(a).

c. *Amended Claim 23 And Claim 24.*

Applicants respectfully traverse the Examiner's rejections to amended claim 23 and claim 24 for at least the following reasons. First, the Wilson '008 patent does not teach the intermittent introduction of a first oxidant, a second oxidant, and a compressible gas. Instead, the Wilson

'008 patent teaches the simultaneous introduction of a hydrogen peroxide solution, the metal salt solution, and the pressurized gas (which plainly cannot be ozone).

Second, neither the Wilson '008 patent nor the Briggs '387 patent, alone or in combination, teach or suggest separate injection points for injection of the hydrogen peroxide solution and the ozone/oxygen mixture. As described above, the Wilson '008 patent specifically teaches the collection and injection of the oxidant, compressed air and a metal salt catalyst in and from a single injector. Indeed, given the very different chemistry that occurs in the Wilson '008 patent and the subject application, no reasonable expectation of success exists to modify the Wilson '008 patent or to combine Wilson '008 patent and the Briggs '387 patent to include separate injection points for injection of the hydrogen peroxide solution and the ozone/oxygen mixture.

With regard to claim 24, Applicants assert that the combination of the Wilson '008 patent and the Briggs '387 patent fails to teach or suggest each and every claim limitation thereof for the reasons discussed above with respect to amended claim 23, since claim 24 depends directly from amended claim 23.

Accordingly, Applicants respectfully submit that a prima facie case of obviousness has not been established. Therefore, Applicants respectfully request that the Examiner withdraw the rejection to amended claim 23 and claim 24 under 35 U.S.C. § 103(a).

#### **NEW CLAIMS**

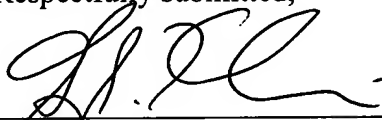
By amendment, Applicant has added new claims 25-28. These new claims do not introduce new matter as new claims 25-28 are fully supported by the specification. Additionally, consideration of new claims 25-28 should not require an additional search. Applicant respectfully submits that new claims 25-28 are patentable in light of the art of record.

## CONCLUSION

In view of the remarks above and the amendments presented herein, Applicants believe that claims 1-7, 9-12, 14 and 16-28 are in condition for allowance and notice to such effect is respectfully requested. If the Examiner thinks a telephone conference would expedite the prosecution of the subject application, the Examiner is invited to call the undersigned at the phone number provided below.

This Amendment is being filed along with a Petition for a Three-Month Extension of Time and proper fee. If additional fees are believed due, the Commissioner is hereby authorized to charge the additional fees, or credit any overpayment, to Deposit Account No. 02-2051, referencing Attorney Docket No. 27566-6.

Respectfully submitted,



Gregory S. Kolocouris  
Reg. No. 47,714

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BENESCH, FRIEDLANDER  
COPLAN & ARONOFF LLP  
2300 BP Tower  
200 Public Square  
Cleveland, OH 44114-2378  
Ph. (216) 363-4453  
Attorney for Applicant